AMENDMENTS TO THE CLAIMS

Claims 1-8 (Canceled).

9. **(Withdrawn - Currently Amended)** A biological sample discrimination apparatus as defined ~~in Claim 8~~Claim 73 wherein

said discrimination unit includes, ~~instead of the heater and the thermistor,~~ a heat contact pin and a thermistor contact pin for applying a voltage to a heater and a thermistor which are provided on the plate.

10-15 (Canceled)

16. **(Withdrawn - Currently Amended)** A biological sample discrimination apparatus as defined in ~~Claim 14~~Claim 73 wherein

said discrimination unit includes, ~~instead of the positive electrode and the negative electrode,~~ two electrode contact pins for applying a voltage to a positive electrode and a negative electrode which are provided on the plate.

17-71 (Canceled)

72. **(New)** A biological sample discrimination apparatus comprising:

a plate on which a channel pattern is formed, said channel pattern comprising a first channel having a round shape comprising an inner circumference channel for injecting a buffer agent and an outer circumference channel serving as a measurement area for performing electrophoresis, and a second channel having, in a portion thereof, a quantification part that has a portion common to the first channel, and holds a predetermined amount of a biological sample, said biological sample being injected into the second channel;

a filling unit for filling the buffer agent into the first channel of the plate while filling the biological sample into the second channel, and thereafter, making a predetermined amount of the biological sample remain in the quantification part of the second channel to add the predetermined amount of the biological sample to the buffer agent; and

a discrimination unit for making the predetermined amount of the biological sample that is held in the quantification part migrate in the buffer agent to discriminate the biological sample that migrates in the buffer agent.

73. **(New)** A biological sample discrimination apparatus as defined in Claim 72 wherein

said plate has a buffer agent injection part connected to the first channel, a sample injection part connected to the second channel, and an air hole connected to the sample injection part in the second channel, and

said filling unit,

rotates the plate, in which the buffer agent is injected into the buffer agent injection part and in which the sample is injected into the sample injection part, thereby to make the buffer agent stored in the buffer agent injection part flow into the first channel by a centrifugal force, and simultaneously, to make the biological sample stored in the sample injection part flow up to a first flow position that does not reach the quantification part in the second channel,

pressurizes the sample injection part to make the biological sample in the second channel flow from the first flow position up to a second flow position including the quantification part in the second channel, and thereafter,

rotates the plate to separate the biological sample in the second channel so that a predetermined amount of the biological sample remains in the quantification part of the second channel.

74. **(New)** A biological sample discrimination apparatus as defined in Claim 73 wherein said filling unit includes

a motor for rotating the plate at a high speed, and

a pressure control part for pressurizing or aspirating the second channel.

75. **(New)** A biological sample discrimination apparatus as defined in Claim 73 wherein

said filling unit is disposed at a lower part of the biological sample discrimination apparatus while said discrimination unit is disposed at an upper part of the apparatus, and

said apparatus further includes an elevation stage for vertically driving the plate between the filling unit and the discrimination unit.

76. **(New)** A biological sample discrimination apparatus as defined in Claim 75 wherein

said discrimination unit is hung, via a spring, from a ceiling board which is provided in an upper portion of the apparatus.

77. **(New)** A biological sample discrimination apparatus as defined in Claim 76 wherein

a pressure control unit for pressurizing or aspirating the second channel is hung from the ceiling board via a spring.

78. **(New)** A biological sample discrimination apparatus as defined in Claim 73 wherein

said discrimination unit includes a thermistor and a heater for measuring a temperature of the first channel with the thermistor, and controlling the first channel to a predetermined temperature in accordance with a result of the measurement.

79. **(New)** A biological sample discrimination apparatus as defined in Claim 78 wherein

said heater is disposed on the first channel, and said thermistor is disposed at a position that is separated from the heater by a distance between the first channel and the heater.

80. **(New)** A biological sample discrimination apparatus as defined in Claim 78 wherein

said thermistor is disposed on the first channel, and said heater is disposed at a position that is separated from the thermistor by a distance between the first channel and the thermistor.

81. **(New)** A biological sample discrimination apparatus as defined in Claim 73 wherein

said discrimination unit includes a fitting pin to be inserted into a fitting pin hole provided on the plate, and a low-speed rotation motor for rotating the discrimination unit at a low speed, and

the low-speed rotation motor rotates the plate and discrimination unit at a low speed, after the plate is fitted and fixed to the discrimination unit with the fitting pin, such that the biological

sample that migrates in the buffer agent is discriminated during the low-speed rotation of the plate.

82. **(New)** A biological sample discrimination apparatus as defined in Claim 81 wherein

said discrimination unit includes a positioning mark detection sensor for detecting a positioning mark that is provided on the plate, and

low-speed rotation motor rotates said plate at a low speed, and the positioning mark detection sensor detects the fitting pin hole on the plate to determine the position of the plate, before the fitting pin is inserted in the fitting pin hole.

83. **(New)** A biological sample discrimination apparatus as defined in Claim 73 wherein

said discrimination unit is provided with a positive electrode and a negative electrode, and

after the filling unit separates the biological sample in the second channel so that a predetermined amount of the biological sample remains in the quantification part of the second channel, the positive electrode and the negative electrode are inserted in the first channel, and a voltage is applied between the positive electrode and the negative electrode to make the predetermined amount of the biological sample stored in the quantification part migrate by electrophoresis in the buffer agent, whereby the biological sample that migrates in the buffer agent is discriminated.

84. **(New)** A biological sample discrimination apparatus as defined in Claim 83 wherein

said plate is provided with a cleaning region for cleaning the positive electrode and the negative electrode, and

after the filling unit separates the biological sample in the second channel so that a predetermined amount of the biological sample remains in the quantification part of the second channel, the positive electrode and the negative electrode are cleaned in the cleaning region, and then the positive electrode and the negative electrode are inserted into the first channel.

85. **(New)** A biological sample discrimination apparatus as defined in Claim 83 wherein

said biological sample is a DNA sample, and

said buffer agent contains a DNA conjugate for separation comprising a linear polymer to which a base sequence that is hydrogen-bondable to a target DNA as a detection target included in the DNA sample is bonded, a DNA bonding control agent, and a pH buffer agent.

86. **(New)** A biological sample discrimination apparatus as defined in Claim 73 wherein

said discrimination unit includes an optical detector for detecting a fluorescence or an absorbance of the buffer agent that is filled in the first channel, and discriminates the biological sample that migrates in the buffer agent, on the basis of a result of the detection by the optical detection unit.

87. **(New)** A biological sample discrimination apparatus as defined in Claim 86 wherein

said optical detection unit is disposed on an elevation stage for vertically moving the plate, and

a height adjustment unit for measuring a distance between the plate and the elevation stage and performing adjustment so as to make the measurement result constant is disposed on the elevation stage.

88. **(New)** A biological sample discrimination apparatus as defined in Claim 72 wherein

said plate has a buffer agent injection part connected to the first channel, a sample injection part connected to the second channel, and an air hole connected to the sample injection part in the second channel, and

said filling unit

rotates the plate, in which the buffer agent is injected into the buffer agent injection part and in which the sample is injected into the sample injection part, thereby to make the buffer agent stored in the buffer agent injection part flow into the first channel by a centrifugal force, and simultaneously, to make the biological sample stored in the sample injection part flow up to a first flow position that does not reach the quantification part in the second channel,

pressurizes the sample injection part to make the biological sample in the second channel flow from the first flow position up to a second flow position including the quantification part in the second channel, and thereafter,

performs aspiration from the air hole to separate the biological sample in the second channel so that a predetermined amount of the biological sample remains in the quantification part of the second channel.

89. **(New)** A biological sample discrimination apparatus as defined in Claim 88 wherein said filling unit includes

a motor for rotating the plate at a high speed, and

a pressure control part for pressurizing or aspirating the second channel.

90. **(New)** A biological sample discrimination apparatus as defined in Claim 88 wherein

said filling unit is disposed at a lower part of the biological sample discrimination apparatus while said discrimination unit is disposed at an upper part of the apparatus, and

said apparatus further includes an elevation stage for vertically driving the plate between the filling unit and the discrimination unit.

91. **(New)** A biological sample discrimination apparatus as defined in Claim 88 wherein

said discrimination unit includes thermistor and a heater for measuring a temperature of the first channel with the thermistor, and controlling the first channel to a predetermined temperature in accordance with a result of the measurement.

92. **(New)** A biological sample discrimination apparatus as defined in Claim 88 wherein

said discrimination unit includes a fitting pin to be inserted into a fitting pin hole provided on the plate, and a low-speed rotation motor for rotating the discrimination unit at a low speed, and

the low-speed rotation motor rotates the plate and discrimination unit at a low speed, after the plate is fitted and fixed to the discrimination unit with the fitting pin, such that the biological sample that migrates in the buffer agent is discriminated during the low-speed rotation of the plate.

93. **(New)** A biological sample discrimination apparatus as defined in Claim 88 wherein

said discrimination unit is provided with a positive electrode and a negative electrode, and

after the filling unit separates the biological sample in the second channel so that a predetermined amount of the biological sample remains in the quantification part of the second channel, the positive electrode and the negative electrode are inserted in the first channel, and a voltage is applied between the positive electrode and the negative electrode to make the predetermined amount of the biological sample stored in the quantification part migrate by electrophoresis in the buffer agent, whereby the biological sample that migrates in the buffer agent is discriminated.

94. **(New)** A biological sample discrimination apparatus as defined in Claim 88 wherein

said discrimination unit includes an optical detector for detecting a fluorescence or an absorbance of the buffer agent that is filled in the first channel, and discriminates the biological sample that migrates in the buffer agent, on the basis of a result of the detection by the optical detection unit.

95. **(New)** A biological sample discrimination apparatus as defined in Claim 72 further including:

a cooling fan for cooling the increased temperature in the apparatus, and

a light cutoff part for cutting off light incident from the outside of the apparatus, which is disposed on an air intake port of the cooling fan.

96. **(New)** A biological sample discrimination apparatus as defined in Claim 95 wherein said light cutoff part comprises a porous film.

97. **(New)** A biological sample discrimination apparatus as defined in Claim 95 wherein said light cutoff part comprises an L-shaped or crank-shaped baffle plate.